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Defense Hogs the Growth in New R&D Budget

The budget that the President sent to Congress last week gives the Defense Department a huge bundle of new money for research and development while sharply cutting or holding steady R&D spending by most civilian federal agencies. The basic numbers are as follows:

Total federal R&D obligations for fiscal 1983 (which begins next October 1) would rise from $38.8 billion to $42.9 billion—assuming Congressional approval and no presidential mind changes. The gross increase amounts to $4.1 billion, of which the Pentagon and its nuclear-

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support services in other agencies would get $3.9 billion.

All in all, defense-related functions of one sort or another will take up about $26.2 billion of that $42.9 billion, thus accelerating the reversal of a longstanding pattern. From 1965 until 1981, federal spending on R&D was about evenly divided between military and civilian programs. The balance began to shift in the last year of the Carter Administration, and now the tilt has progressed to the point where military activities consume about 57 percent of all federal R&D spending. As supporters of basic research, in fact, the armed services are rapidly gaining on the National Science Foundation; in terms of outlays next year, they're just $150 million short of NSF's $861 million.

Government-wide spending for basic research will rise by about $500 million, or 9 percent, to a total of $5.8 billion. Whether that's a lot or a little, depends on your point of view. From the perspective of financially hard-pressed academic science, it's paltry, especially in view of the Reagan Administration's cutbacks on spending for basic science in the budget it inherited from the Carter Administration. But, by the Administration's fanciful inflation forecast of 6.5 percent for the coming year, basic science is a gainer. The trouble with that, of course, is that high-tech scientific research usually runs at an inflationary pace that exceeds most other parts of the economy. Nonetheless, the Administration can correctly assert that basic science is budgeted for "real" growth from fiscal 1982 to 1983.

The presidential fixation on domestic austerity and

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CONDUCT OF R&D BY MAJOR AGENCIES

(In millions of dollars)

Department or Agency	Obligations 1981 actual	1982 estimate	1983 estimate
Defense Military Functions	16,494	20,553	24,469
National Aeronautics and Space Administration	5,407	5,841	6,513
Commerce	5,276	4,793	4,157
(Energy Research and Technology Administration)	(4,948)	(4,522)	(3,917)
Health and Human Services	3,973	3,972	4,122
(National Institutes of Health)	(3,332)	(3,427)	(3,533)
National Science Foundation	964	961	1,033
Agriculture	773	807	838
Interior	424	397	371
Transportation	420	329	366
Environmental Protection Agency	326	317	230
Nuclear Regulatory Commission	227	223	220
Agency for International Development	156	160	186
Veterans Administration	147	137	145
Education	91	74	76
All Other	354	279	272
Total	**35,033**	**38,843**	**42,997**

In Brief

Financially hardpressed academic chemistry departments shouldn't look to industry to compensate for the slump in federal support, according to Robert W. Parry, newly installed President of the American Chemical Society. "There absolutely is no indication that the industrial community can or will" boost its support significantly, he told a Congressional hearing. Industrial aid for university-based fundamental chemistry is embarrassingly low: $14 million, compared to nearly $300 million from the feds.

Parry later told a press briefing that ACS efforts to elicit industry support for a special fund for academic research had drawn virtually no response.

Rare Candor on Capitol Hill: Arthur S. Obermayer, President of Moleculon Research Corporation, recently told a House hearing that when NIH deemed his profit-making firm ineligible for a grant, "we had our lawyers set up Moleculon Research Institute as a legal, non-profit research organization occupying the same space and using the same personnel and facilities." Testifying for a bill that would boost federal R&D support for small firms (SGR Vol. XI, No. 21), Obermayer said the application has been approved for funding, "but I resent being forced to resort to a subterfuge."

...Small Budget Increases for NSF and NIH

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military lavishness shows up in his proposed spending plan for the major research-supporting agencies, as can be seen in the following budget synopses:

National Science Foundation: Overall, the Foundation has been directed to get along with what, at best, will be a standstill budget—$1.072 billion, which is 7.7 percent above its current budget. NSF Director John B. Slaughter, who is sympathetically viewed in pre-Reagan science-policy circles as a Carter-era holdover trying hard in difficult circumstances, told a press briefing that NSF must yield to the President's economic priorities, and will do its best to get good value for the funds available.

He was able to report a few gains here and there. For example, another—as yet-unselected—Industry-University Cooperative Research Center will be added to the six in operation, and planning grants will be awarded for a few more. A few million dollars will be added to NSF's programs to encourage minority-group members to get into science and engineering careers. And the social and economic sciences, once targeted by Reaganite cranks for extinction, will be held steady at this year's figure of $17 million (down from $25 million in 1981). But, in general, NSF is merely maintaining most of the programs that survived the first round of Reagan's assault. Graduate fellowships remain steady at 1,390 and the same is true for training support through research grants, which is expected to assist about 9,000 students. The Ocean Margin Drilling Program has been dropped, Slaughter said, because of lack of industry interest. As for the science-education programs that the Administration's excised from NSF last year, Slaughter said the remedy for the festering problem of inadequacy in the schools rests with state and local governments, industry and academe. But he's hoping for good results from a new Commission on Precollege Education in Mathematics, Science, and Technology, recently authorized by the National Science Board, NSF's policymaking body.

National Institutes of Health: More than ever, NIH is a puzzler, because of its long-vacant directorship—for which Duke University's James Wyngaarden is still said to be the choice—and its shifting fortunes on Capitol Hill. As a result, it's uncertain whether Congress will follow its frequent practice of piling on funds that the Administration omitted in expectation of Congressional largess. If not, NIH will be in for relatively hard times, since the Administration proposal calls for adding a mere $106 million to the current budget of $3.4 billion. NIH is already spreading the word to its formidable lobbying network in Washington that the proposed budget would block the cherished goal of annually funding 5000 new and continuing grants per year; the figure, it's said, would fall to 4100.

NASA: Violating a protocol ban on publicly disclosing how much was sought and what OMB accepted, NASA Administrator James M. Beggs told a press briefing that he wanted $7.6 billion (compared to $5.9 billion at present) and came out with OMB approval for $6.6 billion. The Shuttle, as usual, gets the biggest

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CONDUCT OF BASIC RESEARCH BY MAJOR AGENCIES

(In millions of dollars)

Department or Agency	Obligations		
	1981 actual	1982 estimate	1983 estimate
Health and Human Services	1,955	2,000	2,069
(National Institutes of Health)	(1,767)	(1,839)	(1,897)
National Science Foundation	898	912	984
Defense-military functions	603	673	781
Commerce	608	665	762
(Energy Research and Technology Administration)	(591)	(647)	(741)
National Aeronautics and Space Administration	532	580	682
Agriculture	314	332	359
Interior	80	73	68
Smithsonian Institution	44	45	51
Veterans Administration	15	13	14
Education	17	14	14
Environmental Protection Agency	10	15	10
All Other	32	27	28
Total	5,108	5,348	5,821

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...Compared to Welfare, Science Well Treated

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chunk—most of the $3.4 billion alloted to space transportation systems. But NASA was able to hang on to some space-science programs that had been stirring up gloomy reports as the budget went into the final stages of preparation. Among them: the Galileo mission to Jupiter, scheduled for launch in 1985, and the Gamma Ray Observatory, scheduled for 1988. The Space Telescope, centerpiece of the space-research enterprise for the rest of the century, is scheduled for launching in 1985. The Administration has stuck to its decision to scratch the US half of the International Solar Polar Mission, but will provide "support systems and science instruments" for the project, which is being carried on by the European Space Agency.

Energy: The plan for abolishing the Department of Energy calls for transferring its research-related activities to the Department of Commerce, where they'll come under what's to be known as the Energy Research and Technology Administration. Assuming this happens, ERTA will preside over some financial ups and downs that tend to benefit basic science. Thus, the Energy Department's conservation and renewable-energy programs—which nudged over $1 billion in 1981—will be down to $101 million in 1983. General science, however, goes up from $543 million to $601 million; that includes a boost in high-energy physics spending from $365 million at present to $429 million next year. That's a bit short of the $440 million that the High-Energy Physics Advisory Panel recently deemed a necessary minimum to keep the discipline healthy. But it's not so bad in these otherwise hard times for basic science. Furthermore, the ERTA budget statement reserves final judgment on the fate of the highly troubled Isabelle project at the Brookhaven National Laboratory by blandly noting, "There will be a significant accelerator R&D program at Brookhaven...on super-conducting magnets, which are a high-priority need for the future of the US High-Energy Physics Program." In the words of the OMB budget statement, "Any final decision to proceed with this project will be based on overall scientific potential and budget considerations."

What must be kept in mind about the Reagan Administration's spending plans for science is that they are relatively generous when viewed against the carnage visited upon government programs for assisting unfortunate members of our society. The spokesmen of science will be up against that fairness issue when they plead for more. The Reagan budget is also quite dimwitted in its failure to recognize that graduate-student support—scheduled for severe reductions—is as integral to the scientific enterprise as are laboratory supplies. Politically, those cuts are easier to fight, since vast numbers of students, in all fields, are affected.

Not to be forgotten is that fiscal 1983 is over seven months away and commences just a few weeks before the 1982 Congressional elections. It would be astonishing if many changes to the budget did not occur in that politically charged period.—DSG

Is There a Science Policy?

The fiscal 1983 budget is the first all-Reagan budget, since last time around he was reworking leftovers from the outgoing Carter Administration. Does it suggest a science policy or, at least, significant alterations of past practice?

The answer is that R&D policy a la Reagan is shaping up as something substantially different from what has come before, but there are strong themes of continuity. Like its predecessors, the Reagan Administration explicitly acknowledges federal responsibility for basic research, but much more than past administrations, it insists that the government should back off when the private sector is willing to foot the bill for R&D.

The exact words, contained in the R&D section of the *Special Analysis* of the 1983 budget, are worth noting, because they were worked out by the Office of Management and Budget and the Office of Science and Technology Policy. They could be forgotten tomorrow—such prose can be perishable in Washington—but given the Reagan Administration's demonstrations so far of ideological steadfastness (if not bullheadedness) they probably won't. Says the *Special Analysis:*

> The 1983 budget reflects a cleaner delineation, than has been the case in the past, between the responsibilities of the Federal Government and those of the private sector with respect to R&D to help meet national needs.
>
> The Federal Government has two main responsibilities with respect to R&D to meet national needs.
>
> • First, it should provide a climate for technological innovation which encourages private sector R&D investment that best reflects the realities of the marketplace where new and improved processes and products are developed, bought, and sold. The administration is fulfilling this responsibility primarily by reducing Government spending, regulation and taxes. Thus, the administration's R&D policy is part of its overall economic policy.
>
> • Second, the Government should focus its direct R&D support on those areas where there is substantial prospect for significant economic gain to the Nation, but where the private sector is unlikely to invest adequately in the national interest because the benefits, in large measure, are not immediately "appropriable" by individual firms. Thus, for example, the Federal Government supports basic research across all scientific disciplines but limits its spending on technology development to technologies requiring a long period of initial develop-

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...Keyworth Says Yes, We've Got an R&D Plan

(Continued from page 3)

ment, such as fusion power, where the risk is high but the payoff to the Nation is potentially large...

Apparent deviations from these principles are not difficult to find. For example, the Clinch River (Tenn.) breeder reactor project, slated for a couple of hundred million dollars in the budget, would seem to be one of those big-ticket items that should enlist commercial support or go out of existence. But it's got pork-barrel charm because of its location in the home state of Senate Majority Leader Howard Baker. So, score one for departure from principle.

Also to be noted is the truncated view that the Administration takes of federal responsibility for basic research. While it feels obliged to pay for what goes on in the lab, it displays virtually no interest in the financial plight of the academic institutions in which those labs are located.

What does Presidential Science Adviser George A. Keyworth, chief spokesman for Reagan and science, have to say about this first budget?

In an interview with SGR, he made the following points:

- "The budget is very much in concert with a well-thought-out science policy that we've been trying to develop and establish for several months."
- "The overall health of our scientific and technological establishment is assured with this budget....The overall increase in basic research is rather healthy."
- The vast majority of student assistance in science and technology "comes out of research grants." Furthermore, "last year, the Administration asked for essentially no NSF fellowship money. This year, we requested $15 million."
- For NIH, the relatively small increase "primarily reflects the fact that biological research has received so much impetus in recent years to the exclusion of the physical sciences." But NIH is still getting "an enormous budget...that can support a very healthy biological research program."
- The original plans for very sharp reductions in NSF support of the social and economic sciences were a product of the need to move quickly after the new Administration took office. The decision to continue support "reflects some real thought that was given to maintaining the data base that was funded by" NSF and "some thought paid to the sheer quality of the work that was being done there."
- "At a time when we are trying to whack gigantic sums out of the federal budget," basic research has fared well in this budget "with higher than inflation increases."
- The financial difficulties of higher education constitute "a real problem, but it is completely buck-passing to blame the entire responsibility on the federal government. The institutions have been slow to recognize the requirements for change." The federal government is trying to minimize such problems as fiscal uncertainties and unreasonable reporting requirements, but academe must recognize need for salary differentials to attract sought-after teaching specialists and shifts in the tenure system to open opportunities.

Such is the Keyworth view of Reagan science policy and the budget.

Rosenblith Gets NAS Post

Professor Walter A. Rosenblith, of MIT, has been elected Foreign Secretary of the National Academy of Sciences, succeeding Thomas F. Malone, of the Holcomb Research Institute. The post is a particularly sensitive one during the present decline of detente because of the Academy's longstanding role in Soviet-American scientific contacts.

Newly elected to the NAS Governing Council are: Richard Atkinson, Chancellor, UC San Diego; Jacob Bigeleisen, Professor of Chemistry, SUNY Stony Brook; Donald S. Fredrickson, Scholar-in-Residence, NAS, and Maxine Singer, Chief, Laboratory of Biochemistry, National Cancer Institute. The new officers begin their terms July 1.

Chem Society Drops Magazine

SciQuest, the American Chemical Society's entry in the pop-science periodical field, is going out of business. First published in April 1979, the 10-times-a-year magazine reports an "all-time high" circulation of 64,000, but never got much advertising volume.

The termination will be in two steps: Publication will continue through May for 27,000 copies distributed through schools. Starting in March, 37,000 individual subscribers will have the option of a refund or a subscription to Time Inc.'s *Discover* magazine for issues still due them.

While it's widely said that sooner or later the bubble must burst in the newly flourishing field of mass-audience science magazines, *SciQuest's* demise provides no clue as to the health of this publishing genre. In contrast to *Omni, Science82, Discover,* and *Science Digest,* the ACS magazine operated on a small budget and received scarcely any promotional push. Its contents were timely and brightly written. Unfortunately, editorial quality is not enough.

Hide and Seek on "Excellence and Mediocrity"

The scientific community has generally suffered in silence under Presidential Science Adviser George A. Keyworth's repeated assertions of waste and mediocrity in the American scientific enterprise. But Keyworth, who has declined repeated requests for specifics, is beginning to draw counterfire. One of the first open bursts came February 3, when James Watson, Nobel laureate Director of the Cold Spring Harbor Laboratory, testified at the House Science and Technology Committee's latest round of hearings on "US Science and Technology Under Budget Stress." Following are excerpts from his statement, which was extemporaneous. And following that is our own conversation with Keyworth, February 8 in his office, in which SGR invited him to expand on mediocrity and excellence.

•

Watson: ...I will frame my remarks in terms of some impressions I have of Dr. Keyworth's statement [of December 10 before the Committee—SGR Vol. XI, No. 21], which reflects the Administration view, which I must confess, alarms me...I think it's his view that a shakeout now in science funding wouldn't be a bad thing, because we've expanded rapidly and there's a lot of rot in the system, and only in times of adversity will we face up to the rot...

The particular area where the public believes we expanded too fast was in the war on cancer...I was a member of the National Cancer Advisory Board at the beginning, and I think it's absolutely true. The money went up faster than we had ideas, and there was considerable waste—not outrageous waste, but some waste...I think these conditions have been largely corrected. We [now] don't go around talking about those people who are really getting money that shouldn't have. That was a frequent topic of conversation five years ago...

NSF grants are reaching the point of almost absurdity. They're too small...$20,000 or $15,000—that's just peanuts...[We should] drastically increase the budget which is going to NSF.

You can say, "Where should that come from?" Well, I think we should ask Dr. Keyworth, because he says there's all this waste. I think he should be rapidly appointing committees to show where this waste is, and then redistributing the money to where we know it will not be wasted. If there is waste, we should find it quickly. I think we've got to do something more than say that it exists...

Q. and A. with Keyworth

SGR: Your remarks about mediocrity and insufficient emphasis on excellence have riled certain elements of the scientific community. Did you base these remarks on observations that you had made in the course of your travels?

Keyworth: I base them certainly on my own professional observations and listening over the course of the nine months I have been here to hundreds and hundreds and hundreds of scientists. Naturally, there will be people who disagree with any comment that I say that has any substance. But interestingly enough, I don't find very many scientific leaders, especially not scientific leaders in centers of excellence, disagreeing with me. People will question whether I have the unique, God-given ability to define excellence and mediocrity, and I have never said that I have. What I have said is that the scientific community has got to get more involved in the distinction between excellence and mediocrity.

SGR: Have you observed mediocrity and insufficient excellence in the scientific community?

Keyworth: Of course, I have. I have seen mediocrity quite widespread, but if you ask me to define in what corner of what state, I'm not going to do so. We want to leave more responsibility in the hands of the scientific community.

SGR: But you know the names and addresses of these places where you think there's insufficient quality.

Keyworth: I think that throughout our entire establishment, including in America's absolutely top universities, there are sometimes little corners, sometimes big corners, of mediocrity that has crept in.

SGR: What proportion of the national enterprise would you roughly estimate this accounts for?

Keyworth: I have no idea. I have a hard time quantifying it. My own experience does not integrate over the whole country, nor does the experience of all those people I've talked to. It's a strange thing. I find that most other developed nations are worrying about the same thing and yet we seem to have developed a barrier in our minds about there being mediocrity in anything we can do. There's mediocrity in most human endeavors.

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Europe: Its Science Foundation Gains Status

London. Once it's understood that the European Science Foundation neither is, nor was intended to be, an Old World counterpart of the billion-dollar-a-year US National Science Foundation, it is easier to appreciate that the seven-year-old ESF is a useful, though unusual, institution on the scientific landscape.

Basically, it's an 18-nation, European-wide consortium of professional and semi-governmental organizations huddled together to swap information, coordinate research activities, and mount lobbying efforts for political support and money for research. It has no power to command, and works on a mere $2 million a year. Headquarters is in Strassbourg, France, and the fulltime staff numbers about a dozen. But the ESF Executive Council draws its membership from high-ranking science politicians in the member nations, and tradition, though brief, suggests that the directorship is reserved for science-policy heavyweights of the major members. The founding Director was Brian Flowers, Rector of Imperial College, London, and former Chairman of the UK's Science Research Council. Last year, he was succeeded by Hubert Curien, Director of the French space agency and former head of the French National Center for Scientific Research (CNRS).

ESF's most impressive performance so far concerns the proposed European Synchrotron Radiation Facility (ESRF), a $120-million large storage-ring-type X-ray source that no one European country wants to tackle alone. In the late 1970s, when many X-ray sources in Europe were coming to the end of their useful lives, and lagging far behind machines planned for the US, Japan, and the USSR, the ESF responded to the situation with a smooth mixture of planning, coordination, and lobbying.

In 1978 it initiated a planning exercise under the leadership of Yves Farge, then director of an X-ray lab at Orsay, near Paris. Farge set up committees and coordinated workshops involving over 120 European scientists. Over the next three years, they designed a source, specified the ancillary instrumentation, and made a scientific case for the project in a fair amount of detail. Their conclusions are now available in a four-part ESF report, which, as might be expected has become the centerpiece for the next step—political lobbying. National meetings to discuss the plans—for instance, one at the UK's Daresbury laboratory—have accelerated the process.

With the technical planning phase over, and the relevant committee work completed, the ESF is now setting up a "political" committee to lobby for support, a phase which it expects to last several years, at least. But even before the committee has been formally constituted, problems have arisen. The first is over a site for the machine. Already a dozen or so proposals have come from laboratories with existing X-ray facilities. Another has come from the economically beleagured city of Trieste, along with the promise of a lot of money—the figure of $70 million has been mentioned—if the project goes there. But, of course, the money will come with strings. Scientists at the European Organization for Nuclear Research (CERN) have suggested that the ESRF could be built at a bargain price in the tunnel of the Intersecting Storage Rings at CERN, which will shortly cease to host particle physics experiments. (One possible difficulty with the CERN site is that the geometry of the tunnel will reduce the number of beam lines that can draw off X-rays.)

Among the established labs making a bid for the ESRF is the Daresbury laboratory, where Europe's first dedicated synchrotron source (the SRS) began work recently. But British X-ray researchers are perhaps the least enthusiastic about putting money into a European project, since the SRS provides sufficient X-rays for years to come—and they cannot even find adequate funds to develop the experimental program on the SRS, never mind finance a separate machine.

It is this kind of conflict of interest that the political committee will have to wrestle with over the next few years. If the ESF can guide this project through to fruition, it will indeed have proved its worth as a unifying body for Europe's scientists.

ESF's proposals usually come from its dozen or so subject committees. They are discussed by the annual assembly of 70 to 80 delegates from the member countries, which usually accepts the committees' proposals unanimously. On the rare occasion when conflict arises, proposals are amended until they receive universal approval. Often the proposals are to set up new "addi-

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Discover *Plans TV Show*

DISCOVER magazine, Time Inc.'s entry in the pop-sci periodical sweepstakes, plans a test entry early this year into TV science documentaries. In collaboration with the Gulf Oil Corporation, and employing the prizewinning NOVA science-documentary team of John Angier and Graham Chedd, *DISCOVER* will put out a one-hour special "based on material approved by the editors" of the magazine. "Beyond the first program," an announcement from *DISCOVER* states, "the agreement...gives Gulf an option for exclusive sponsorship of *DISCOVER* programming on commercial television for five years."

...ESF: A Major Role in Astronomy Planning

(Continued from page 6)

tional activities" run by subcommittees that consist of specialists interested in the relevant projects. Last year's November assembly, for example, gave its blessing to a new program that will stimulate training and research in toxicology. The European Medical Research Council (now a standing committee of the ESF) has identified a Europe-wide shortage of expertise in this area.

Activities like this have had a quiet but substantial impact on several disciplines. The toxicology program will follow closely along the lines of the European Training Program in Brain and Behavior Research, which predated the ESF, but was taken over by it in 1976. The training program supports interdisciplinary research, helps scientists get to conferences, and runs two courses annually.

The ESF's largest effort in the physical sciences has concerned astronomy, which, in Europe as in the US, has recently grown rapidly and commands large capital investments. Since its formation in 1976, the astronomy committee has made Europe-wide assessments of observatory facilities and opportunities for space research, and attempted to exert its influence to see that the last ounce of value is squeezed out of diminishing budgets. The ESF won some short-lived notoriety in 1980 when it criticized the European Space Agency for devoting too few resources to space astronomy. Less notice has been attracted by its role in coordinating the planning of ground-based telescopes, notably the European Southern Observatory and the new international (substantially British, but shares being sold off by the day) astronomical center in the Canary Islands. Now, the ESF thinks, the big planning phase for astronomy is over, and it shut down the "additional activity" in astronomy at the November 1981 assembly.

In the meantime, the ESF has launched its first activity in the earth sciences. Following an initiative from Swiss scientists, it is looking at the feasibility of a "geotraverse" of Europe: a geological investigation of a strip of land running approximately north to south from Scandinavia to Italy. This project, which will investigate rock formations down to the Earth's mantle, could cost $6 million over three years.

One of the original aims of the ESF was to provide advice on scientific matters for other European organizations, such as the European Economic Community. This ambition has not been fulfilled so far—probably because of the Foundation's rather purist approach to scholarship. There are signs of change, however, one of them a request by members of the European Parliament for the ESF to look at the commercial and patent aspects of genetic engineering research; the Foundation may set up a committee next year to do just that.

At the age of seven, the ESF has built a firm base of small but appreciated achievements. The next few years will be crucial ones in determining whether it can make a real impact on science planning in Europe by persuading national governments to take it seriously. A lot will depend on the success or failure of the European synchrotron venture.—RH

Letter to the Editor

["CIA Deputy Urges Curbs on R&D Information," SGR Vol. XII, No. 1] implied that the academic cryptographers have agreed to the "voluntary" American Council on Education committee proposal [to submit possibly sensitive papers for pre-publication review by the National Security Agency]. As far as I know, there has been no general agreement to that plan, certainly not by MIT. It's an important point, since the implied agreement seems to be seen in some quarters as a possible precedent.

Francis Low
Provost, MIT

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Crackdown Hits Poles with US Science Ties

A number of Polish scientists directly associated with American exchange programs were interned when martial law was put into effect in December, according to reports reaching Washington.

Though military control has been somewhat eased, and many internees reported released, American sources say they have little reliable information about their Polish scientific colleagues, including several who were elected to senior administrative posts in the reform period that preceded the military takeover. Meanwhile, a number of Polish scientists who were in the US when the crackdown occurred have not yet indicated their intentions about returning.

Polish-American scientific relations, in a relatively flouishing state prior to the current crisis, have virtually come to a halt, according to several officials in Washington who administer the exchanges. Under a program run by the National Science Foundation in collaboration with the Polish Academy of Sciences and several Polish government agencies, about 20 projects — jointly financed at a total cost of some $3.1 million — were initiated over the past two years. Just prior to the declaration of martial law, the two countries concluded an additional bilateral agreement under which funds would be awarded directly to individual research and academic institutions in each country for carrying out activities in the other. In preparation for the new arrangement, NSF said it had conducted talks on industrial robots, polymer studies, and molecular biology. Foundation officials viewed the new bilateral technique as administratively less cumbersome than the previous setup. Just before martial law went into effect, an NSF memo cited the "strong interest of American scientists in establishing cooperative ties with Polish institutions and scientists..." and it was noted that NSF "expects considerable proposal pressure to develop under the [new] program in the years ahead."

US Medical Enrollments Up Again

Medical school enrollments hit a new peak this academic year—66,298—but the rate of increase dropped off a bit, according to the Association of American Medical Colleges, Washington-based trade asociation for the nation's 126 medical schools.

Though there's no informed dissent from the proposition that the US is overproducing physicians, new first-year students were at an all-time high, 16,644, raising overall enrollments by 1.7 percent; in the year before that, their numbers went up by 2.2 percent.

The proportion of women students continues to increase—27.9 percent at present, compared to 23.7 percent in 1977-78. "Underrepresented minorities—Blacks, American Indians, Mexican-Americans, and Mainland Puerto Ricans—increased from 8 percent last year to 8.3 percent.

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